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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,104	10/27/2003	Shinji Uchida	00862.023280	1628
5514	7590	03/14/2006		
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			EXAMINER LE, DANG D	
			ART UNIT 2834	PAPER NUMBER

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/693,104	UCHIDA	
	Examiner	Art Unit	
	Dang D. Le	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,9-12 and 14-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,9-12 and 14-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-6, 9-12, and 14-16 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-6, 9-12, and 14-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification does not show the movable member movable in a first direction and the second electromagnet being positioned away from the first electromagnet in a second direction which is perpendicular to the first direction and the first and second electromagnet being positioned at the same side of the movable member.

The specification and Drawings (Figures 3 and 4) show the first and second pair electromagnets being positioned away in a second direction which is perpendicular to the first direction and the first pair of electromagnets being positioned at the same side

of the movable member. The leakage flux from the electromagnets is canceled as shown in Figure 3A and 3B.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-6, 9-12, and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

Regarding claims 1, 11, 12, 14, and 16, if the movable member is movable in a first direction, the second electromagnet is positioned away from the first electromagnet in a second direction which is perpendicular to the first direction, and the first and second electromagnets are positioned at the same side of the moveable member, such feature could only be shown as Figure 3A of Mikiya et al. (6,382,935). However, the specification and Drawings of the present application do not show such feature.

In addition, it is not clear if "a same direction" at the last line of the claims refers to the first or second direction.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 4, 5, 14, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Mikiya et al. (6,382,935).

Regarding claim 1, Mikiya et al. shows an apparatus (Figure 3A) comprising:

- A movable member (110a) movable in a first direction (arrow F or B) and
- An electromagnet unit (181) configured and positioned to drive said movable member in the first direction (up-down), wherein said electromagnet unit comprises:
 - A first electromagnet (190 and core 181a); and
 - A second electromagnet (191 and core 181c) positioned away from said first electromagnet in a second direction (left-right) which is perpendicular to the first direction,
 - Wherein said first electromagnet and said second electromagnet are positioned at a same side (center – not outside as 182 and 183) of said movable member, and
 - Wherein each of said first electromagnet and said second electromagnet is controlled (Figure 3B) to generate a magnetic flux (S1, S2, N1, N2) having an inverted polarity (north vs. south) with respect to the other, and a leakage flux of said first electromagnet is canceled by a leakage flux having the inverted polarity of said second electromagnet, and a suction power (north vs. south and vice versa) generated by said first electromagnet and a suction power generated by said second electromagnet are applied to drive said movable member in a same direction (with the first direction).

- (It is noted that the canceled flux are the flux outside of the core (181) above and below in Figure 3A).

Regarding claim 2, it is noted that Mikiya et al. also shows current control means (Figure 3B) for applying currents of inverted polarities (W1 vs. W2) having substantially a same value to a first coil and a second coil so as to generate magnetic flux of different polarities in said first electromagnet and said second electromagnet, said first coil wound around a core constituting said first electromagnet and said second coil wound around a core constituting said second electromagnet in a same direction as the first coil.

Regarding claim 4, it is noted that Mikiya et al. also shows a movable core portion configured with a magnetic material (110a, 137a, 138a), which forms magnetic paths respectively between said first electromagnet and said movable core portion, and said second electromagnet and said movable core portion; and a supporting member (113, 114) configured with a nonmagnetic material, which supports said movable core portion.

Regarding claim 5, it is noted that Mikiya et al. also shows said electromagnet unit further comprising a third electromagnet (183) positioned away from said second electromagnet in the second direction, wherein said third electromagnet is controlled to generate a magnetic flux (N1 of 183a) having the same polarity as the magnetic flux generated by said first electromagnet (N1 of 181a) and having a polarity inverted with respect to the polarity of the magnetic flux generated by said second electromagnet (S1 of 181c).

Regarding claim 14, it is noted that Mikiya et al. also shows the two electromagnets (190 and 181a vs. 191 and 181c) being arranged away from each other in a second direction but at a same side (center) and the "other" two electromagnets (182 and 183) being arranged on each side of the first member.

Regarding claim 15, it is noted that Mikiya et al. also shows the controller (Figure 3B) with different polarities (W1 and W2).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mikiya et al. in view of Konecny (4,774,428).

Regarding claim 3, Mikiya et al. shows all of the limitations of the claimed invention except for in a case when currents of a uniform polarity having substantially a same value are applied to the said first coil and the said second coil, a coil winding direction of the said first coil wound around the said core constituting said first electromagnet is opposite to a coil winding direction of the said second coil wound around the said core constituting said second electromagnet.

Konecny shows the coil winding could be wound with opposite direction (Figure 2A) in order to create different polarities (either north or south) with the same current.

Since Mikiya et al. and Konecny are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art in a case when currents of a uniform polarity having substantially a same value are applied to the said first coil and the said second coil, a coil winding direction of the said first coil wound around the said core constituting said first electromagnet is opposite to a coil winding direction of the said second coil wound around the said core constituting said second electromagnet as taught by Konecny for the purpose discussed above.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mikiya et al.

Regarding claim 6, Mikiya et al. shows all of the limitations of the claimed invention including the leakage flux of said first electromagnet (N1) and a leakage flux of said third electromagnet (N1) being canceled by the leakage flux having the inverted polarity of said second electromagnet (S1), and the suction power generated by said first electromagnet and the suction power generated by said second electromagnet and a suction power generated by said third electromagnet are applied to drive said movable member in the same direction except for current control means applies currents to respective coils of said first electromagnet, said second electromagnet and said third electromagnet at a ratio of 1:2:1.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply the current at a ratio of 1:2:1, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

11. Claims 9-12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikiya et al. in view of Yuan et al. (6,069,417).

Regarding claims 9 and 10, Mikiya et al. shows all of the limitations of the claimed invention except for a plurality of electromagnet units, having said first electromagnet and said second electromagnet, for driving the stage in X-axis, Y-axis and Z-axis directions and a rotational direction around respective axes and a carriage stage for carrying said apparatus on an XY plane.

Yuan et al. shows a plurality of electromagnet units (Figure 5), having said first electromagnet and said second electromagnet, for driving the stage in X-axis, Y-axis and Z-axis directions and a rotational direction around respective axes and a carriage stage (30) for carrying said apparatus on an XY plane for the purpose of moving wafers instead of pumping fluid.

Since Mikiya et al. and Yuan et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include a plurality of electromagnet units, having said first electromagnet and said second electromagnet, for driving the stage in X-axis, Y-

axis and Z-axis directions and a rotational direction around respective axes and a carriage stage for carrying said apparatus on an XY plane as taught by Yuan et al. for the purpose discussed above.

Regarding claim 11, the claim is similar to claim 1 except that it further includes a charged-particle source with first and second electron optical system. It is noted that Yuan et al. also shows the feature in Figure 4.

Regarding claim 12, the claim is similar to claim 1 except that it further includes the device manufacturing method with the step of installing a plurality of semiconductor manufacturing apparatuses and charged-particle beam exposure apparatus. It is noted that the method would be inherent and obvious since the prior art references meet the structural limitations of the claimed device.

Regarding claim 16, the claim is similar to claim 1 except that it further includes a charged-particle beam exposure apparatus. It is noted that Yuan et al. also shows the features in Figure 5.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

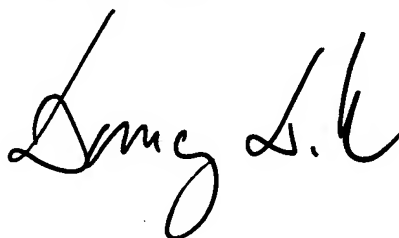
Information on How to Contact USPTO

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D. Le whose telephone number is (571) 272-2027. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

3/9/06



DANG D. LE
PRIMARY EXAMINER